

Jump, Christine

From: Michael Stephenson <mstephenson@cameron-cole.com>
Sent: Friday, May 30, 2014 3:21 PM
To: Jump, Christine; SMITH, MARTIN L
Cc: Akhter Hossain; mkamal@kdheks.gov; John Cook; Tony Carmeli
Subject: RE: IRM Workplan Response to Comments for Building J
Attachments: Phase I-II IRM with LDRs.pdf; Confirmatory Sample RL-MDL Phase I.xlsx; Revised Table 1.xlsx; Figure X - Sump Locations.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

RCRA



534216

Hello Chris,

Please consider this email and attachments Clean Harbors' response to your conditional approval dated May 6, 2014 for Phase I of the IRM at the Clean Harbors Wichita Facility. Provided below are your requirements and Clean Harbors response.

- 1) Prior to initiating the work, Submit a figure illustrating the area(s) to be addressed during Phase I of the RCRA Soil IM. Include any areas exceeding LDR limits.

The attached figure (Phase I-II IRM with LDRs) provides the areas to be addressed during Phase I of the work (note this is limited only to the areas designated as phase I in the drawing). The only area with constituent concentrations exceeding LDR limits are located immediately west of Building I. Soils at a depth of 10 feet bgs at this location contained concentrations of COCs exceeding LDR limits. The LDR limits and references are shown in the figure legend.

- 2) Prior to initiating the work, submit a Table listing the specific compounds, analytical methods, detection limits and quantitation limits that will be used for analysis of Phase I soil confirmation samples.

The attached table (confirmatory sample RL-MDL Phase I) provides the requested information. It should be noted that matrix interference and other analytical issues may prevent attainment of these RLs in all samples.

- 3) It is EPA's understanding that Table 1 lists all chemicals detected above regulatory levels. Revise Table 1 or add a separate table to include all compounds detected on site (including those below regulatory levels) and their associated IAOs.

The attached Table (Revised Table 1) provides the proposed IAOs for all compounds detected to date at the Site. Will these limits will be used as IAOs for the interim action, it is probable that the IAOs for all compounds will not be achieved at all locations (as determined through collection of confirmatory samples). Residual concentrations of COCs that exceed IAOs following completion of the IRM will be further evaluated in the CMS.

- 4) Table 2. Table 2 indicates that a KDHE Tier II RSK value for the compound Dalapon is not available. Dalapon has a MCL value for protection of ground water and the EPA has a soil->GW regional screening level (RSL) of 0.041 mg/kg. Dalapon was detected in Building J at concentrations above the EPA RSL but all of the analyses for Dalapon were either j-coded or had detection levels that exceeded the EPA RSL. KDHE has indicated that they plan to calculate a Tier II soil->GW RSK value for Dalapon, but it is unclear when this information will be available. EPA strongly recommends that confirmation samples in Building J be analyzed for Dalapon at detection levels below the RSL, if possible. Further discussion of IAO for Dalapon at this site should be included in the Site-wide response to comments on the Soil IM work plan.

The attached table (Revised Table 1) includes an IAO for dalapon of 0.929 mg/kg. This value was taken from your email dated May 12, 2014 and is greater than all Dalapon detections in site soils to date.

- 5) Comment 7 Response: The text response to this comment indicates that all sumps present at the facility are located on Figure X; however, figure X does not show the sumps in Buildings J and I. The sumps in Buildings J and I are not required to be investigated at this time since these buildings are being retained for use under the permit; however, the figure should be revised to either show all sumps or specify what sumps are shown. This revised figure may be submitted with the site-wide response to comments on the Soil IM work plan.

The attached Figure (Figure X – sump locations) has been revised with a note in the legend indicating that sumps in Buildings J and I are not shown since these buildings are not going through closure at this time.

- 6) Comment 10 Response: This comment indicates that backfill material will be sampled but it does not state how this data will be used. All backfill material used on site must meet site IAO objectives. Naturally occurring compounds must be within qualitatively evaluated naturally occurring ranges as approved by EPA.

All backfill material used on site will be sampled to confirm that COC concentrations are below IAOs. Naturally occurring compounds in the backfill material will be qualitatively evaluated and discussed with EPA prior to importing the material for use as backfill.

- 7) Comment 14 Response: As discussed with Mike Stephenson on May 5, 2014, draft data results for all confirmation samples will be transmitted to EPA and KDHE within 72 hours of receipt by Clean Harbors. Sharing of data as quickly as possible will help facilitate communication and expedite decisions or identify potential problems quickly.

Clean Harbors concurs.

- 8) Comment response 18: Please include LDR information pertinent to Phase I work on the figure requested in comment 1 above. When Figure 10 is revised for the site-wide response to comments on the Soil IM work plan, please identify all pertinent compound-specific LDRs in the Figure Legend.

The attached Figure (Phase I-II IRM with LDRs) includes the LDR limits for all compounds detected above LDR limits and a reference to the appropriate CFR.

Should you have any further questions or concerns regarding these responses, please call or email to discuss.

Sincerely,

Mike Stephenson
Principal Scientist
Cameron-Cole, LLC
50 Hegenberger Loop
Oakland CA 94621
office - 510.777.1864
mobile - 510.773.9895
mstephenson@cameron-cole.com

From: Jump, Christine [mailto:Jump.Chris@epa.gov]
Sent: Tuesday, May 06, 2014 3:10 PM
To: Michael Stephenson; SMITH, MARTIN L

Cc: Akhter Hossain; mkamal@kdheks.gov; John Cook

Subject: FW: IRM Workplan Response to Comments for Building J

The information in the attachments submitted by Clean Harbors in an email on May 5, 2014 is a partial response to EPA comments dated April 9, 2014 on the DRAFT RCRA Soil Interim Measure (Soil IM) Work Plan. It is EPA's understanding that these responses are intended to address comments specifically affecting the portion of the Soil IM work designated as Phase I in the draft work plan. This Phase I soil IM activity is being conducted under corrective action and additional actions may be required during final closure.

With that understanding, Phase I excavation activities proposed in the Soil IM work plan are conditionally approved, based on the following requirements:

- 1) Prior to initiating the work, Submit a figure illustrating the area(s) to be addressed during Phase I of the RCRA Soil IM. Include any areas exceeding LDR limits.
- 2) Prior to initiating the work, submit a Table listing the specific compounds, analytical methods, detection limits and quantitation limits that will be used for analysis of Phase I soil confirmation samples.
- 3) It is EPA's understanding that Table 1 lists all chemicals detected above regulatory levels. Revise Table 1 or add a separate table to include all compounds detected on site (including those below regulatory levels) and their associated IAOs.
- 4) Table 2. Table 2 indicates that a KDHE Tier II RSK value for the compound Dalapon is not available. Dalapon has a MCL value for protection of ground water and the EPA has a soil->GW regional screening level (RSL) of 0.041 mg/kg. Dalapon was detected in Building J at concentrations above the EPA RSL but all of the analyses for Dalapon were either j-coded or had detection levels that exceeded the EPA RSL. KDHE has indicated that they plan to calculate a Tier II soil->GW RSK value for Dalapon, but it is unclear when this information will be available. EPA strongly recommends that confirmation samples in Building J be analyzed for Dalapon at detection levels below the RSL, if possible. Further discussion of IAO for Dalapon at this site should be included in the Site-wide response to comments on the Soil IM work plan.
- 5) Comment 7 Response: The text response to this comment indicates that all sumps present at the facility are located on Figure X; however, figure X does not show the sumps in Buildings J and I. The sumps in Buildings J and I are not required to be investigated at this time since these buildings are being retained for use under the permit; however, the figure should be revised to either show all sumps or specify what sumps are shown. This revised figure may be submitted with the site-wide response to comments on the Soil IM work plan.
- 6) Comment 10 Response: This comment indicates that backfill material will be sampled but it does not state how this data will be used. All backfill material used on site must meet site IAO objectives. Naturally occurring compounds must be within qualitatively evaluated naturally occurring ranges as approved by EPA.
- 7) Comment 14 Response: As discussed with Mike Stephenson on May 5, 2014, draft data results for all confirmation samples will be transmitted to EPA and KDHE within 72 hours of receipt by Clean Harbors. Sharing of data as quickly as possible will help facilitate communication and expedite decisions or identify potential problems quickly.
- 8) Comment response 18: Please include LDR information pertinent to Phase I work on the figure requested in comment 1 above. When Figure 10 is revised for the site-wide response to comments on the Soil IM work plan, please identify all pertinent compound-specific LDRs in the Figure Legend.

The Phase I portion of the Soil IM Work plan, as presented in the Draft RCRA Soil Interim Remedial Measure Work plan dated March 20, 2014, and the Response to Comments on that document submitted by email on May 5, 2014 is

conditionally approved for implementation provided Clean Harbors accepts and complies with the requirements and comments above. Please call me if you have any questions or would like to discuss this approval.

Chris Jump, L.G.
Waste Remediation and Permitting Branch
US EPA, Region 7
jump.chris@epa.gov
(913) 551-7141

Mailing address: 11201 Renner Boulevard, Lenexa, KS 66219

From: Michael Stephenson [<mailto:mstephenson@cameron-cole.com>]
Sent: Monday, May 05, 2014 10:19 AM
To: Jump, Christine
Cc: SMITH, MARTIN L
Subject: IRM Workplan Response to Comments for Building J

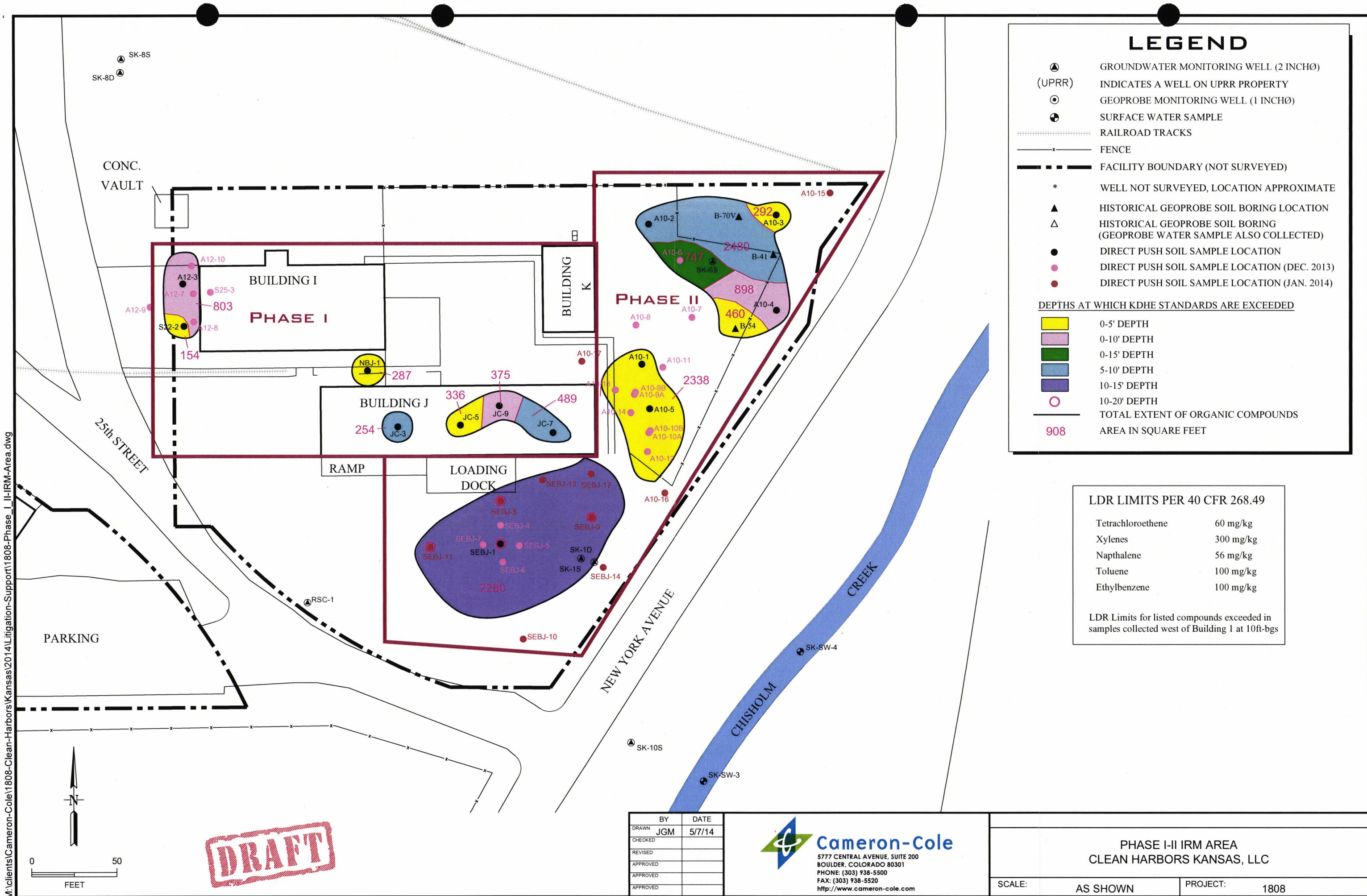
Hello Chris,

As we discussed last week, attached please find our response to EPA comments as they pertain to near term activities inside and north of Building J and to the west of Building I. As we discussed, we are in dire need of some form of approval (conditional or otherwise) to satisfy Shawn Maloney at the City of Wichita who will be issuing the relevant permits to start work.

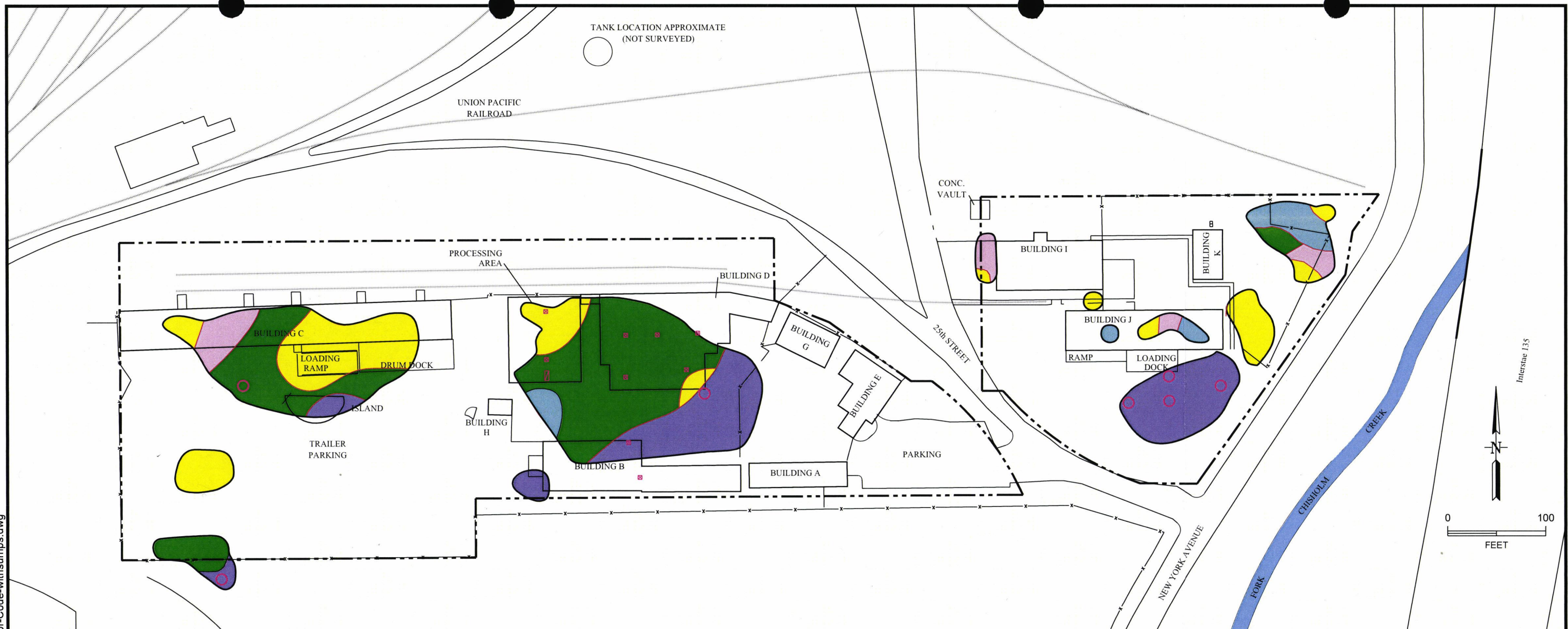
I am sending this response as a draft in hopes that you and I can work through any changes you'd like today in hopes that you can send an approval email later today once we have everything addressed to your satisfaction. As I mentioned last week, the balance of your comments will be addressed prior to beginning work in other areas of the Site, and we are only seeking your approval to begin remediation in Building J, north of Building J and to the West of Building I.

Thanks for your help, and please call me as soon as you have reviewed this response so we can discuss.

Mike Stephenson
Senior Scientist
Cameron-Cole, LLC
50 Hegenberger Loop
Oakland CA 94621
office - 510.777.1864
mobile - 510.773.9895
mstephenson@cameron-cole.com



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LEGEND

- SUMP LOCATION
- RAILROAD TRACKS
- x- FENCE
- - - FACILITY BOUNDARY (NOT SURVEYED)
- * WELL NOT SURVEYED, LOCATION APPROXIMATE

DEPTHS AT WHICH KDHE STANDARDS ARE EXCEEDED



- 0-5' DEPTH
- 0-10' DEPTH
- 0-15' DEPTH
- 5-10' DEPTH
- 10-15' DEPTH
- 10-20' DEPTH

TOTAL EXTENT OF ORGANIC COMPOUNDS

NOTE: SUMP LOCATIONS WITHIN BUILDINGS J AND I ARE NOT SHOWN BECAUSE THESE BUILDINGS ARE NOT GOING THROUGH CLOSURE AT THIS TIME

BY	DATE
DRAWN	FR 4/9/14
CHECKED	
REVISED	
APPROVED	
APPROVED	
APPROVED	



Cameron-Cole

5777 CENTRAL AVENUE, SUITE 200
BOULDER, COLORADO 80301
PHONE: (303) 938-5500
FAX: (303) 938-5520
<http://www.cameron-cole.com>

DRAFT

FIGURE X

SUMP LOCATIONS
CLEAN HARBORS KANSAS, LLC

SCALE: AS SHOWN PROJECT: 1808

Reporting Limits and Detection Limits
Phase I IRM Confirmatory Samples
Clean Harbors Wichita

Compound	CAS No.	RL	MDL	Units
<i>Volatile Organic Compounds (USEPA Method 8260)</i>				
Acetone	67-64-1	50	15	ug/kg
Acrolein	107-02-8	25	11	ug/kg
Acrylonitrile	107-13-1	25	7.8	ug/kg
Benzene	71-43-2	5	1	ug/kg
Bromobenzene	108-86-1	5	1.1	ug/kg
Bromochloromethane	74-97-5	5	1.9	ug/kg
Bromodichloromethane	75-27-4	5	1	ug/kg
Bromoform	75-25-2	5	1.1	ug/kg
n-Butylbenzene	104-51-8	5	1	ug/kg
sec-Butylbenzene	135-98-8	5	1	ug/kg
tert-Butylbenzene	98-06-6	5	1	ug/kg
Chlorobenzene	108-90-7	5	1	ug/kg
Chloroethane	75-00-3	5	2.3	ug/kg
Chloroform	67-66-3	5	1.1	ug/kg
o-Chlorotoluene	95-49-8	5	1	ug/kg
p-Chlorotoluene	106-43-4	5	1	ug/kg
2-Chloroethyl vinyl ether	110-75-8	25	10	ug/kg
Carbon disulfide	75-15-0	5	1	ug/kg
Carbon tetrachloride	56-23-5	5	1.4	ug/kg
1,1-Dichloroethane	75-34-3	5	1	ug/kg
1,1-Dichloroethylene	75-35-4	5	1	ug/kg
1,1-Dichloropropene	563-58-6	5	1.1	ug/kg
1,2-Dibromo-3-chloropropane	96-12-8	5	2.1	ug/kg
1,2-Dibromoethane	106-93-4	5	1.8	ug/kg
1,2-Dichloroethane	107-06-2	5	1	ug/kg
1,2-Dichloropropane	78-87-5	5	1	ug/kg
1,3-Dichloropropane	142-28-9	5	1	ug/kg
2,2-Dichloropropane	594-20-7	5	1.4	ug/kg
Dibromochloromethane	124-48-1	5	1	ug/kg
Dichlorodifluoromethane	75-71-8	5	1.3	ug/kg
cis-1,2-Dichloroethylene	156-59-2	5	1	ug/kg
cis-1,3-Dichloropropene	10061-01-5	5	1	ug/kg
m-Dichlorobenzene	541-73-1	5	1	ug/kg
o-Dichlorobenzene	95-50-1	5	1	ug/kg
p-Dichlorobenzene	106-46-7	5	1.1	ug/kg
trans-1,2-Dichloroethylene	156-60-5	5	1.3	ug/kg
trans-1,3-Dichloropropene	10061-02-6	5	1	ug/kg
Ethylbenzene	100-41-4	5	1	ug/kg
2-Hexanone	591-78-6	25	4.9	ug/kg
Hexachlorobutadiene	87-68-3	5	1	ug/kg

Isopropylbenzene	98-82-8	5	1	ug/kg
p-Isopropyltoluene	99-87-6	5	1	ug/kg
4-Methyl-2-pentanone	108-10-1	25	5	ug/kg
Methyl bromide	74-83-9	5	1.9	ug/kg
Methyl chloride	74-87-3	5	2	ug/kg
Methylene bromide	74-95-3	5	1.2	ug/kg
Methylene chloride	75-09-2	10	4	ug/kg
Methyl ethyl ketone	78-93-3	25	7.5	ug/kg
Methyl Tert Butyl Ether	1634-04-4	5	1	ug/kg
Naphthalene	91-20-3	5	2	ug/kg
n-Propylbenzene	103-65-1	5	1	ug/kg
Styrene	100-42-5	5	1	ug/kg
1,1,1,2-Tetrachloroethane	630-20-6	5	1.1	ug/kg
1,1,1-Trichloroethane	71-55-6	5	1	ug/kg
1,1,2,2-Tetrachloroethane	79-34-5	5	1.4	ug/kg
1,1,2-Trichloroethane	79-00-5	5	1.6	ug/kg
1,2,3-Trichlorobenzene	87-61-6	5	1.2	ug/kg
1,2,3-Trichloropropane	96-18-4	5	1.9	ug/kg
1,2,4-Trichlorobenzene	120-82-1	5	1.2	ug/kg
1,2,4-Trimethylbenzene	95-63-6	5	1	ug/kg
1,3,5-Trimethylbenzene	108-67-8	5	1	ug/kg
Tetrachloroethylene	127-18-4	5	1.3	ug/kg
Toluene	108-88-3	5	1	ug/kg
Trichloroethylene	79-01-6	5	1	ug/kg
Trichlorofluoromethane	75-69-4	5	1	ug/kg
Vinyl chloride	75-01-4	5	1	ug/kg
Vinyl Acetate	108-05-4	25	8	ug/kg
m,p-Xylene		10	1.6	ug/kg
o-Xylene	95-47-6	5	1.1	ug/kg

Semi-Volatile Organic Compounds (USEPA Method 8270)

Benzoic Acid	65-85-0	830	170	ug/kg
2-Chlorophenol	95-57-8	170	17	ug/kg
4-Chloro-3-methyl phenol	59-50-7	170	17	ug/kg
2,4-Dichlorophenol	120-83-2	170	17	ug/kg
2,4-Dimethylphenol	105-67-9	170	18	ug/kg
2,4-Dinitrophenol	51-28-5	830	170	ug/kg
4,6-Dinitro-o-cresol	534-52-1	330	67	ug/kg
2-Methylphenol	95-48-7	170	17	ug/kg
3&4-Methylphenol		170	33	ug/kg
2-Nitrophenol	88-75-5	170	17	ug/kg
4-Nitrophenol	100-02-7	830	130	ug/kg
Pentachlorophenol	87-86-5	830	130	ug/kg
Phenol	108-95-2	170	17	ug/kg
2,4,5-Trichlorophenol	95-95-4	170	21	ug/kg
2,4,6-Trichlorophenol	88-06-2	170	17	ug/kg
Acenaphthene	83-32-9	170	21	ug/kg
Acenaphthylene	208-96-8	170	17	ug/kg

Aniline	62-53-3	170	17	ug/kg
Anthracene	120-12-7	170	17	ug/kg
Benzidine	92-87-5	1700	330	ug/kg
Benzo(a)anthracene	56-55-3	170	17	ug/kg
Benzo(a)pyrene	50-32-8	170	17	ug/kg
Benzo(b)fluoranthene	205-99-2	170	17	ug/kg
Benzo(g,h,i)perylene	191-24-2	170	17	ug/kg
Benzo(k)fluoranthene	207-08-9	170	18	ug/kg
4-Bromophenyl phenyl ether	101-55-3	170	17	ug/kg
Butyl benzyl phthalate	85-68-7	170	33	ug/kg
Benzyl Alcohol	100-51-6	170	17	ug/kg
2-Chloronaphthalene	91-58-7	170	20	ug/kg
4-Chloroaniline	106-47-8	170	17	ug/kg
Carbazole	86-74-8	170	17	ug/kg
Chrysene	218-01-9	170	17	ug/kg
bis(2-Chloroethoxy)methane	111-91-1	170	17	ug/kg
bis(2-Chloroethyl)ether	111-44-4	170	17	ug/kg
bis(2-Chloroisopropyl)ether	108-60-1	170	17	ug/kg
4-Chlorophenyl phenyl ether	7005-72-3	170	25	ug/kg
1,2-Dichlorobenzene	95-50-1	170	17	ug/kg
1,2-Diphenylhydrazine	122-66-7	170	19	ug/kg
1,3-Dichlorobenzene	541-73-1	170	17	ug/kg
1,4-Dichlorobenzene	106-46-7	170	17	ug/kg
2,4-Dinitrotoluene	121-14-2	170	19	ug/kg
2,6-Dinitrotoluene	606-20-2	170	18	ug/kg
3,3'-Dichlorobenzidine	91-94-1	170	17	ug/kg
Dibenzo(a,h)anthracene	53-70-3	170	17	ug/kg
Dibenzofuran	132-64-9	170	17	ug/kg
Di-n-butyl phthalate	84-74-2	330	33	ug/kg
Di-n-octyl phthalate	117-84-0	170	33	ug/kg
Diethyl phthalate	84-66-2	330	33	ug/kg
Dimethyl phthalate	131-11-3	170	33	ug/kg
bis(2-Ethylhexyl)phthalate	117-81-7	330	33	ug/kg
Fluoranthene	206-44-0	170	17	ug/kg
Fluorene	86-73-7	170	17	ug/kg
Hexachlorobenzene	118-74-1	170	17	ug/kg
Hexachlorobutadiene	87-68-3	170	17	ug/kg
Hexachlorocyclopentadiene	77-47-4	170	17	ug/kg
Hexachloroethane	67-72-1	170	17	ug/kg
Indeno(1,2,3-cd)pyrene	193-39-5	170	17	ug/kg
Isophorone	78-59-1	170	17	ug/kg
1-Methylnaphthalene	90-12-0	170	17	ug/kg
2-Methylnaphthalene	91-57-6	170	17	ug/kg
2-Nitroaniline	88-74-4	170	33	ug/kg
3-Nitroaniline	99-09-2	170	33	ug/kg
4-Nitroaniline	100-01-6	170	33	ug/kg
Naphthalene	91-20-3	170	17	ug/kg

Nitrobenzene	98-95-3	170	17	ug/kg
N-Nitrosodimethylamine	62-75-9	170	19	ug/kg
N-Nitroso-di-n-propylamine	621-64-7	170	17	ug/kg
N-Nitrosodiphenylamine	86-30-6	170	17	ug/kg
Phenanthrene	85-01-8	170	17	ug/kg
Pyrene	129-00-0	170	17	ug/kg
Pyridine	110-86-1	330	33	ug/kg
1,2,4-Trichlorobenzene	120-82-1	170	17	ug/kg
<i>Dalapon (8151MS)</i>				
Dalapon	75-99-0	5	1.5	ug/kg
<i>RCRA 8 Metals (USEPA Method 6010/6020)</i>				
Arsenic	7440-38-2	0.5	0.1	mg/kg
Barium	7440-39-3	10	0.05	mg/kg
Cadmium	7440-43-9	0.2	0.025	mg/kg
Chromium	7440-47-3	0.5	0.05	mg/kg
Mercury (7470/7471)	7439-97-6	0.041	0.0041	mg/kg
Lead	7439-92-1	1	0.08	mg/kg
Selenium	7782-49-2	1	0.15	mg/kg
Silver	7440-22-4	0.5	0.0325	mg/kg

RL - Reporting Limit

MDL - Method Detection Limit

ug/kg - micrograms per kilogram

mg/kg - milligrams per kilogram

Table 1
Proposed Soil Interim Action Objectives
Clean Harbors Wichita

Compound	Cas No	IAO (mg/kg)	IAO ref
<i>Volatile Organic Compounds</i>			
1,1,1-Trichloroethane	71-55-6	2.8	a
1,1,2,2-Tetrachloroethane	79-34-5	0.016	a
1,1,2-Trichloroethane	79-00-5	0.081	a
1,1-Dichloroethane	75-34-3	0.269	a
1,1-Dichloroethene	75-35-4	0.0859	a
1,2,4-Trimethylbenzene	95-63-6	1.07	a
1,2-Dichlorobenzene	95-50-1	48.4	a
1,2-Dichloroethane	107-06-2	0.06	a
1,2-Dichloropropane	78-87-5	0.0817	a
1,3,5-Trimethylbenzene	108-67-8	5.51	a
1,4-Dichlorobenzene	106-46-7	5.94	a
1,4-Dioxane	123-91-1	0.384	a
2-Butanone	78-93-3	24.2	a
2-Hexanone	591-78-6	140	d
4-Isopropyltoluene	99-87-6	NA	
4-Methyl-2-Pentanone	108-10-1	6.69	a
Acetone	67-64-1	51.6	a
Benzene	71-43-2	0.168	a
Carbon Disulfide	75-15-0	6.71	a
Carbon Tetrachloride	56-23-5	0.0734	a
Chlorobenzene	108-90-7	5.1	a
Chloroethane	75-00-3	128	a
Chloroform	67-66-3	0.85	a
Cis-1,2-Dichloroethene	156-59-2	0.855	a
Ethylbenzene	100-41-4	65.6	a
Hexachlorobutadiene	87-68-3	1.1	a
Isopropylbenzene	98-82-8	65.1	a
M,P-Xylenes	NULL	809	a
Methyl Tert-Butyl Ether	1634-04-4	0.848	a
Methylene Chloride	75-09-2	0.0429	a
Naphthalene	91-20-3	0.349	a
N-Butylbenzene	104-51-8	50.9	a
N-Propylbenzene	103-65-1	110	a
O-Xylene	95-47-6	809	a

Sec-Butylbenzene	135-98-8	82.7	a
Styrene	100-42-5	9.34	a
Tert-Butylbenzene	98-06-6	10000	d
Tetrachloroethene	127-18-4	0.121	a
Toluene	108-88-3	51.2	a
Trans-1,2-Dichloroethene	156-60-5	1.22	a
Trichloroethene	79-01-6	0.0842	a
Vinyl Chloride	75-01-4	0.0205	a

Semi-Volatile Organic Compounds

1-Methylnaphthalene	90-12-0	2.19	a
2,4-Dimethylphenol	105-67-9	29.9	a
2-Methylnaphthalene	91-57-6	8.34	a
2-Methylphenol	95-48-7	48.6	a
Acenaphthene	83-32-9	255	a
Acenaphthylene	208-96-8	NA	
Aniline	62-53-3	1.95	a
Anthracene	120-12-7	3770	a
Benzo(A)Anthracene	56-55-3	7.89	a
Benzo(A)Anthracene	56-55-3	7.89	a
Benzo(A)Pyrene	50-32-8	23.5	a
Benzo(B)Fluoranthene	205-99-2	19.2	a
Benzo(G,H,I)Perylene	191-24-2	NA	
Benzo(K)Fluoranthene	207-08-9	190	a
Bis(2-Ethylhexyl) Phthalate	117-81-7	144	a
Butyl Benzyl Phthalate	85-68-7	478	a
Carbazole	86-74-8	52.7	a
Chrysene	218-01-9	805	a
Dibenz(A,H)Anthracene	53-70-3	3.08	a
Dibenzofuran	132-64-9	7.59	a
Dimethyl Phthalate	131-11-3	NA	
Di-N-Butyl Phthalate	84-74-2	318	a
Fluoranthene	206-44-0	2830	a
Fluorene	86-73-7	297	a
Hexachlorobenzene	118-74-1	1.24	a
Hexachlorobutadiene	87-68-3	1.1	a
Indeno(1,2,3-Cd)Pyrene	193-39-5	45.5	a
Isophorone	78-59-1	1800	d
M-,P-Cresol Mixture		NA	
Naphthalene	91-20-3	0.349	a
N-Nitrosodiphenylamine	86-30-6	350	d
Phenanthrene	85-01-8	NA	

Phenol	108-95-2	189	a
Pyrene	129-00-0	2190	a
Pesticides-Herbicides-PCBs			
2,4,5-T	93-76-5	3.75	a
4,4'-DDD	72-54-8	31.8	a
4,4'-DDE	72-55-9	24.1	a
4,4'-DDT	50-29-3	24.6	a
Alpha-Chlordane	5103-71-9	NA	
Dalapon	75-99-0	0.929	a
Dieldrin	60-57-1	0.193	a
Endosulfan Sulfate	1031-07-8	NA	
Endrin Aldehyde	7421-93-4	NA	
Endrin Ketone	53494-70-5	NA	
Gamma-Chlordane	5103-74-2	NA	
Heptachlor Epoxide	1024-57-3	0.405	a
Mcpp	7085-19-0	NA	
Methoxychlor	72-43-5	215	a
Pcb-1254	11097-69-1	50	e
Pentachlorophenol	87-86-5	0.996	a
Toxaphene	8001-35-2	46.3	a
Metals			
Aluminum	7429-90-5	99000	d
Antimony	7440-36-0	817	b
Arsenic	7440-38-2	63.2	b
Barium	7440-39-3	277000	b
Beryllium	7440-41-7	3650	b
Boron	7440-42-8	20000	d
Cadmium	7440-43-9	965	b
Calcium	7440-70-2	NA	
Chromium	7440-47-3	111	b
Cobalt	7440-48-4	579	b
Copper	7440-50-8	81700	b
Iron	7439-89-6	72000	d
Lead	7439-92-1	1000	b
Lithium	7439-93-2	200	d
Magnesium	7439-95-4	NA	
Manganese	7439-96-5	66200	b
Mercury	7439-97-6	20	b
Molybdenum	7439-98-7	510	d
Nickel	7440-02-0	32400	b
Potassium	7440-09-7	NA	

Selenium	7782-49-2	10200	b
Silver	7440-22-4	10200	b
Sodium	7440-23-5	NA	
Strontium	7440-24-6	61000	d
Thallium	7440-28-0	0.14	c
Tin	7440-31-5	61000	d
Titanium	7440-31-5	NA	
Vanadium	7440-62-2	510	d
Zinc	7440-66-6	613000	b

Notes:

IAO - Interim Action Objective

mg/kg - milligrams per kilogram

a - KDHE Tier II Soil to Groundwater (residential)

b - KDHE Tier II Direct Contact (Non residential)

c - USEPA RSL - MCL based SSL for protection of groundwater

d- USEPA RSL - Industrial soil SSL

e. - Kansas Bureau of Environmental Remediation Policy # BER-ARS-047